

REMARKS

Claims 1-4, 7-26, and 29-67 are pending in this application.

Claims 54-60 and 65-67 are allowed.

Claims 1-4, 7-12, 14, 15, 17-26, 29-34, 37, 38, 40, 42-46, 48, 51-53, and 61-63 are rejected.

Claims 13, 16, 35, 36, 39, 41, 47, 49, 50, and 64 are objected to.

Claim 62 has been amended.

All amendments are made in a good faith effort to advance the prosecution on the merits. Applicant reserves the right to subsequently take up prosecution on the claims as originally filed in this or appropriate continuation, continuation-in-part and/or divisional applications.

Applicant respectfully requests that the amendments submitted herein be entered, and further requests reconsideration in light of the amendments and remarks contained herein.

Claim Rejections 35 U.S.C. § 102(e) - Tolman

Claims 40, 42-44, 48, 51, and 53 stand rejected under 35 U.S.C. 102(e) as being anticipated by Tolman et al. (6,543,538) ("Tolman"). With respect to these rejections, the Office Action states:

Tolman et al. disclose a method completing a well (Fig. 17) comprising: perforating a first zone in the subterranean formation by injecting a pressurized, abrasive-solid containing fluid (col. 16,

line 63) through a hydrajetting tool 410 into the formation to form perforation tunnels and openings (col. 17, lines 15-16); injecting a fracturing fluid (col. 17, line 16) into the perforation tunnels so as to create fractures along the perforation tunnels adjacent the wellbore; moving the tool to a second zone (col. 11, lines 16-31) before or during plugging; propagating the fracture (col. 17, line 23; col. 18, line 11) with an isolation fluid (col. 18, lines 30-33); repeating the perforating, fracturing and moving steps to a second zone of the subterranean formation (fig. 17); injecting the fracturing fluid into the first and second zones by the hydrajetting tool; fracturing a horizontal or deviated portion wellbore (col. 17, line 66); the hydrajetting tool kept stationary during the perforating step; cuttings left in the annulus from the perforating step pumped into the fracture during the additional pumping step (since the cuttings are not disclosed as being removed, this step is considered inherent) injecting an acidizing fluid (col. 6, line 65) into the fractures; and pumping nitrogen (col. 23, line 45) to flush out the wellbore.

(Office Action at page 3.)

Applicant respectfully traverses this rejection as to all of the rejected claims.

As to claim 40, Tolman does not disclose “initiating one or more fractures in the *first zone* of the subterranean formation by injecting a fracturing fluid into the one or more perforation tunnels through the *hydrajetting tool*” and “pumping additional fracturing fluid into the one or more fractures in the *first zone* through a wellbore annulus in which the hydrajetting tool is disposed so as to propagate the fracture.” As noted above, Tolman does not teach or suggest that the jetting tool (410) is used to inject fracturing fluid and then propagate the fracture. Rather, it states only that the “jetting tool 410 has been used to place perforations 420 to penetrate the first formation interval of interest” (col. 17, lines 19-21). Further, the distinction of “before or during plugging; propagating the fracture” is not supported by Tolman. (Office Action at page 2.) Tolman teaches in Fig. 17 that “the jetting tool 410 has then been used to place perforations 424 in the *second formation* interval of interest such that perforations 424 may

be stimulated with the *second stage* of the multi-stage hydraulic proppant fracture treatment.” Accordingly, Applicants respectfully submit that the 35 U.S.C. § 102(e) rejection of Claim 40 has been overcome, and respectfully requests the withdrawal of this rejection.

As to remaining claims 42-44, 48, 51, and 53 rejected as anticipated by Tolman, They are dependent claims of claim 40 and are believed allowable for at least the same reasons as the claim 40 from which they depend.

Accordingly, claims 40, 42-44, 48, 51, and 53 are believed patentable over Tolman. Examiner is therefore requested to withdraw his rejection of these claims and allow these claims to issue.

Claim Rejections 35 U.S.C. § 103(a) - Tolman in view of Bullen

Claims 1,2, 7-12, 17-21, 24-26, 29-34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman in view of Bullen (3,664,422).

Applicant respectfully traverses this rejection with respect to all rejected claims. The Office Action states:

Claims 1, 2, 7-12, 17-21, 24-26, 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman et al. in view of Bullen (3664422)

Tolman et al. disclose a method of competing a well (Fig. 17) comprising: perforating a first zone in the subterranean formation by injecting a pressurized, abrasive-solid containing fluid (col. 16, line 63) through a hydrjetting tool 410 into the formation to form perforation tunnels and openings (col. 17, line 15); injecting a fracturing fluid (col. 17, line 16) into the perforation tunnels so as to create fractures along the perforation tunnels adjacent the wellbore; moving the tool to a second zone (col. 11, lines 16-31) before or during plugging; at least partially plugging the fractures and openings in the first zone (col. 17, line

23; col. 18, line 11) with an isolation fluid (col. 18, lines 30-33); repeating the perforating, fracturing, and moving steps to a second zone of the subterranean formation (fig. 17); the isolation fluid is a ceramic proppant, resin, or cross-linked gel (col. 18, lines 30-33); the hydrjetting tool kept stationary during the perforating step; each fracture having an opening (Fig. 17); injecting the fracturing fluid into the first and second zones by the hydrjetting tool (col. 17, lines 19-21), which injects the fluid into the zones at a pressure above that required to fracture the formation (col. 17, line 20); moving the hydrjetting tool to the second zone after plugging is performed (col. 18, line 11); the hydrjetting tool kept stationary during the perforating step; and injecting an acidizing fluid (col. 6, line 65) into the fractures but not plugging fractures with an enhancing isolation fluid and injecting acidizing fluid to maintain conductivity.

Bullen describe plugging fractures and openings with an enhancing isolation fluid (col. 2, lines 19-22).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use an enhancing isolation fluid in the Tolman et al. method, as described by Bullen in order to stimulate the well with little reservoir contamination and a high percentage of load fluid recovery (Bullen, col. 2, lines 10-13).

(Office Action at pages 3-4.)

Applicants respectfully disagree because the Examiner has not established a *prima facie* case of obviousness, in that the cited references do not disclose, expressly or inherently, each and every claim limitation and there is no suggestion or motivation to combine the references with a reasonable expectation of success. *See* MPEP § 2142.

As to Claims 1 and 24, neither Tolman nor Bullen teach an enhancing isolation fluid. First, the cited references do not teach each and every claim limitation. *See* MPEP § 2142. In particular, independent claims 1 and 24 recite “plugging at least partially the one or more fractures in the first zone with an enhancing isolation fluid.” Rather than disclosing plugging with the use of an enhancing isolation fluid, Bullen is directed to “[p]articles of the propping

agent, suspended in the mixture [being] carried into the fracture. The injected fluid is then permitted to leak off into the formation until the fracture has *closed sufficiently to hold the particles in place.*" (col. 2, lines 19-23) Accordingly, Bullen does not teach or suggest the use of enhancing isolation fluid for "plugging at least partially the one or more fractures in the first zone" as recited by claims 1 and 24. Nor can Tolman be used to supply this missing recitation. Accordingly, Tolman in view of Bullen does not teach or suggest each and every limitation of claims 1 and 24.

Second, there is no suggestion or motivation to combine the references with a reasonable expectation of success. *See* MPEP § 2142. "Obviousness can only be established by . . . modifying the teaching of the prior art where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art." MPEP § 2143.01.

Furthermore, the Examiner must consider "[a] prior art reference . . . in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." MPEP § 2141.02. In this instance, it does not appear that the Examiner has considered the references as a whole, in particular the portions of the primary references that teach away from making the suggesting combination. *See* MPEP § 2145(X)(D)(2) ("It is improper to combine references where the references teach away from the combination."). Applicants respectfully submit that Bullen clearly teaches away from the proposed combination. For instance, the background of the invention suggests that fluids typically used in hydraulic fracturing operations "must have filter loss values sufficiently low to permit build-up and maintenance of the required pressures at reasonable injection rates. This normally requires that such fluids have adequate viscosities or contain filter-loss control agents which will plug the pores in the formation." (col.

1, lines, 26-31) In contrast, Claims 1 and 24 recite .”plugging...fractures in the first zone with an enhancing isolation fluid.”

As to claims 2, 7-12, 17-21, 25, 26, and 29-34 they depend from amended claims 1 and 24, which include an “enhancing isolation fluid” for “plugging at least partially the one or more fractures.” All these dependant claims, which include all the limitations of their corresponding independent claim, are allowable for at least the reasons cited above with respect to independent claims 1 and 24.

Accordingly, claim 2, 7-12, 17-21, 25, 26, and 29-34 are believed patentable over Tolman in view of Bullen. Examiner is therefore requested to withdraw his rejection of these claims and allow these claims to issue.

Claim Rejections 35 U.S.C. § 103(a) - Tolman in view of Bullen further in view of Hill

Claims 3 and 4 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman in view of Bullen (3,664,422) as applied to claim 1 above and further in view of Hill (3,712,379).

Applicant respectfully traverses this rejection. The Office Action states:

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman et al. in view of Bullen as applied to claim 1 above, and further in view of Hill (3712379).

The combination discloses the using an enhancing isolation fluid in a completion method plug injecting an acidizing fluid into the fractures, so as to etch the one or more fractures and thereby maintain conductivity within the fractures at a later time but not injecting fluid into a formation at a pressure above the fracture pressure.

Hill discusses injecting fluid into a formation at a pressure above the fracture pressure (col. 4, line 10).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to injecting [sic] fluid into a formation at a pressure above the fracture pressure, as discussed by Hill, in order to create more than one vertical fracture in an interval (Hill, col. 3, lines 6-7).

(Office Action at pages 4-5.)

As to claims 3 and 4 they depend from amended claim 1, which include an “enhancing isolation fluid” for “plugging at least partially the one or more fractures” as discussed above. All these dependant claims, which include all the limitations of their corresponding independent claim, are allowable for at least the reasons cited above with respect to independent claim 1.

Accordingly, claims 3 and 4 are believed patentable over Tolman in view of Bullen as applied to claim 1 above and further in view of Hill. Examiner is therefore requested to withdraw his rejection of these claims and allow these claims to issue.

Claim Rejections 35 U.S.C. § 103(a) - Tolman in view of Bullen further in view of Montgomery

Claims 14, 15, 37, 38 and 52 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman in view of Bullen (3,664,422) as applied to claim 1, 24, and 40 respectively above and further in view of Montgomery (6,070,666).

Applicant respectfully traverses this rejection as to claims 14, 15, 37, 38 and 52.

With respect to these rejections, the Office Action states:

Claims 14, 15, 37, 38, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman et al. in view of Bullen as applied to claim 1, 24, and 40, respectively above, and further in view of Montgomery (6070666).

The combination discloses the using an enhancing isolation fluid in a completion method plus injecting an acidizing fluid into

the fractures, so as to etch the one or more fractures and thereby maintain conductivity within the fractures at a later time but not pumping enough fracturing fluid to plug the fractures or removing the isolation fluid from the first zone performed by circulating the isolation fluid out of the wellbore and back to the surface after all of the desired fractures have been formed.

Montgomery presents pumping enough fracturing fluid, comprising sand (col. 3, line 42) adhesive resin (col. 4, line 11) and consolidating agent (col. 3, line 51), to plug the fractures (col. 3, lines 37-40) and removing the isolation fluid from the first zone by circulating the isolation fluid out of the wellbore and back to the surface after all of the desired fractures have been formed (col. 5, lines 33-37).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to remove an isolation fluid out of fractures, as presented by Montgomery, in order to produce all the fractured well zones.

(Office Action at pages 5-6.)

As to claims 14, 15, 37, and 38 they depend from amended claims 1 and 24, which include an “enhancing isolation fluid” for “plugging at least partially the one or more fractures.” All these dependant claims, which include all the limitations of their corresponding independent claim, are allowable for at least the reasons cited above with respect to independent claims 1 and 24.

Accordingly, claims 14, 15, 37, and 38 are believed patentable over Tolman in view of Bullen further in view of Montgomery. Examiner is therefore requested to withdraw his rejection of these claims and allow these claims to issue.

As to claim 52, it depends upon claim 40. As to claim 40, Tolman does not disclose “initiating one or more fractures in the *first zone* of the subterranean formation by injecting a fracturing fluid into the one or more perforation tunnels through the *hydrajetting tool*” and “pumping additional fracturing fluid into the one or more fractures in the *first zone* through a

wellbore annulus in which the hydr jetting tool is disposed so as to propagate the fracture” as shown above.

Accordingly, claim 52 is believed patentable over Tolman in view of Bullen further in view of Montgomery as the cited references do not teach each and every claim limitation. *See* MPEP § 2142. Examiner is therefore requested to withdraw his rejection of these claims and allow these claims to issue.

Claim Rejections 35 U.S.C. § 103(a) - Tolman in view of Bullen further in view of Desbrow

Claims 22, 23, 45 and 46 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman in view of Bullen (3,664,422) as applied to claim 1, and 40 respectively above and further in view of Desbrow (2,758,653).

Applicant respectfully traverses this rejection as to claims 22, 23, 45 and 46.

With respect to these rejections, the Office Action states:

Claims 22, 23, 45, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman et al. in view of Bullen as applied to claim 1 and 40, respectively above, and further in view of Desbrow (2758653).

The combination discloses the using an enhancing isolation fluid in a completion method but not rotating a hydr jet tool.

Desbrow shows a hydr jet tool 14 that rotates and moves vertically during cutting (col. 5, lines 38-42).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to cut helical and vertical slots to complete the Tolman et al. well, as shown by Desbrow, in order to provide horizontal, vertical, or sloping fractures (col. 2, lines 4-11).

(Office Action at pages 6-7.)

As to claims 22 and 23 they depend from amended claim 1, which include an “enhancing isolation fluid” for “plugging at least partially the one or more fractures.” All these dependant claims, which include all the limitations of their corresponding independent claim, are allowable for at least the reasons cited above with respect to independent claim 1.

Accordingly, claims 22 and 23 are believed patentable over Tolman in view of Bullen further in view of Desbrow. Examiner is therefore requested to withdraw his rejection of these claims and allow these claims to issue.

As to claims 45 and 46, they depend upon claim 40. As to claim 40, Tolman does not disclose “initiating one or more fractures in the *first zone* of the subterranean formation by injecting a fracturing fluid into the one or more perforation tunnels through the *hydrajetting tool*” and “pumping additional fracturing fluid into the one or more fractures in the *first zone* through a wellbore annulus in which the hydrajetting tool is disposed so as to propagate the fracture” as shown above.

Accordingly, claims 45 and 46 is believed patentable over Tolman in view of Bullen further in view of Montgomery as the cited references do not teach each and every claim limitation. *See* MPEP § 2142. Examiner is therefore requested to withdraw his rejection of these claims and allow these claims to issue.

Claim Rejections 35 U.S.C. § 103(a) - Tolman in view Bullen further in view of Montgomery

Claims 61-63 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman in view of Montgomery.

Applicant respectfully traverses this rejection as to claims 61-63. With respect to these rejections, the Office Action states:

Claims 61-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tolman et al. in view of Montgomery.

Tolman et al. disclose a method of completion comprising hydrojetting casing and a formation, fracturing one zone, plugging the zone, and moving to another location then repeating the process but not pumping enough fracturing fluid to plug the fractures or removing the isolation fluid from the first zone performed by circulating the isolation fluid out of the wellbore and back to the surface after all of the desired fractures have been formed.

Montgomery presents pumping enough fracturing fluid, comprising sand (col. 3, line 42), adhesive resin (col. 4, line 11), and consolidating agent (col. 3, line 51), to plus fractures (col. 3, lines 37-40) and removing the isolation fluid from the first zone by circulating the isolation fluid out of the wellbore and back to the surface after all of the desired fractures have been formed (col. 5, lines 33-37).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to remove an isolation fluid out of fractures, as presented by Montgomery, in order to produce all the fractured well zones.

(Office Action at pages 7-8.)

As to claims 61-63, Applicant respectfully submits that the Examiner's conclusion of obviousness relies upon impermissible hindsight. MPEP § 2141.01(III). The MPEP and the Federal Circuit repeatedly warn against using an applicant's disclosure as a blueprint to reconstruct the claimed invention. For example, the MPEP states, "[t]he tendency to resort to 'hindsight' based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art." MPEP § 2142. The governing Federal Circuit cases are equally clear. "A critical step in analyzing the patentability of claims pursuant to [35 U.S.C. § 103] is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art

references and the then-accepted wisdom in the field. . . . [c]lose adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one ‘to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher.’” *In re Kotzab*, 217 F.3d 1365, 1369, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000) (citations omitted). In *Kotzab*, the Federal Circuit noted that to prevent the use of hindsight based on the invention to defeat patentability of the invention, the court requires the Examiner to show a motivation to combine the references that create the case of obviousness. *See id.* *See also, e.g., Grain Processing Corp. v. American Maize-Products*, 840 F.2d 902, 907, 5 U.S.P.Q.2d 1788, 1792 (Fed. Cir. 1988). Similarly, in *Dembiczak*, the Federal Circuit reversed a finding of obviousness by the Board, explaining that the required evidence of such a teaching, suggestion, or motivation is essential to avoid impermissible hindsight reconstruction of an applicant’s invention:

Our case law makes clear that the best defense against the subtle but powerful attraction of hind-sight obviousness analysis is *rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references*. Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor’s disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.

175 F.3d at 999, 50 U.S.P.Q.2d at 1617 (emphasis added) (citations omitted).

Neither Tolman nor Montgomery directly teach “(a) perforating a first zone in the subterranean formation by injecting a perforating fluid through a hydr jetting tool into the subterranean formation, so as to form one or more perforation tunnels; (b) fracturing the first zone of the subterranean formation by injecting a fracturing fluid into the one or more perforation tunnels; (c) perforating a second zone in the subterranean formation by injecting the perforation fluid through the hydr jetting tool into the subterranean formation, so as to form one or more perforation tunnels in the second zone; (d) fracturing the second zone of the subterranean formation by injecting the fracturing fluid into the one or more perforation tunnels; and (e) pumping enough fracturing fluid into the wellbore during step (d) to plug the fractures in

the first zone.” In addition, the background of Montgomery suggests that the practice in horizontal wells of using “sand plugs are not readily usable because the sand slumps and exposes the fractures in the previously fractured zone” as recited in claim 62. (col. 1, lines 40-45). Further, Tollman is directed toward a method of utilizing a jetting tool 410 to fracture a zone and having perforations “hydraulically sealed using particulate diverter 426 as the diversion agent” and which does not pump enough fracturing fluid to plug the fractures. (col 17, line 15-23; col. 18, line 11). Tollman and Montgomery neither teach nor suggest the combination of a jetting tool and pumping enough fracturing fluid to plug the fractures as recited in claim 61.

Accordingly, claim 61-63 are believed patentable over Tolman in view of Montgomery. Examiner is therefore requested to withdraw his rejection of these claims and allow these claims to issue.

Objection to Claims

Claims 13, 16, 35, 39, 41, 47, 49, 50 and 64 are objected to as being dependent upon rejected base claims, but Examiner noted that they would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims.

In light of the arguments and amendments, Applicant contends that the underlying independent claims are allowable. Therefore, claims 13, 16, 35, 39, 41, 47, 49, 50 and 64 are also allowable, and Applicants respectfully request that Examiner withdraw his objection.

Allowable Subject Matter

Applicant gratefully acknowledges Examiner’s allowance of claims 54-60 and 65-67.

SUMMARY

In light of the above amendments and remarks, Applicant respectfully submits that the application is now in condition for allowance and early notice of the same is earnestly solicited. Should the Examiner have any questions, comments or suggestions in furtherance of the prosecution of this application, the Examiner is invited to contact the attorney of record by telephone, facsimile or electronic mail, as indicated below.

Applicant believes that there are no fees due in association with the filing of this Response. However, should the Commissioner deem that any fees are due, including any fees for any extensions of time, Applicant respectfully requests that the Commissioner accept this as a Petition therefore, and directs that any fees be debited from Baker Botts L.L.P., Deposit Account No. 02-0383, (*formerly Baker & Botts, L.L.P.*,) Order Number 063718.0504.

Respectfully submitted,

BAKER/BOTTS L.L.P. (023640)

By: 

Paul R. Morico
Registration No. 35,960
One Shell Plaza
910 Louisiana Street
Houston, Texas 77002-4995
Telephone: 713.229.1732
Facsimile: 713.229.7732
email: paul.morico@bakerbotts.com

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ATTORNEY FOR APPLICANT